

/CLASS/ CLASS Current Requirements

CLASS Allocated Requirements

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ID	CLASS Allocated Requirements	Campaigns
CAR1	1 Introduction	
CAR383	The National Environmental Satellite, Data, and Information Service (NESDIS) is responsible for the collection, archiving, and dissemination of environmental data collected by a variety of <i>in situ</i> and remote sensing observing systems operated by the National Oceanic and Atmospheric Administration (NOAA) and by a number of its partners [e.g., National Aeronautics and Space Administration (NASA)]. To prepare for large increases in its data holdings, NESDIS initiated the planning and development for a Comprehensive Large Array-data Stewardship System (CLASS) that provides archive and access services for these data. CLASS must be able to handle the data flow from current satellite-based systems [e.g., Polar-orbiting Operational Environmental Satellite (POES), Geostationary Operational Environmental Satellite (GOES), and Defense Meteorological Satellite Program (DMSP)], ground-based systems [e.g., Next Generation Weather Radar (NEXRAD)] and <i>in situ</i> systems [e.g., Automated Surface Observing System (ASOS)]. It must also be structured to handle the large increases in data that will come from planned satellite launches [e.g., Meteorological Operational satellites (METOP), National Polar-orbiting Operational Environmental Satellite System (NPOESS), NPOESS Preparatory Project (NPP), and Earth Observing System/Modern Operations Distributed Infrared Spectrometer (EOS/MODIS) satellites].	
CAR384	This document specifies the known allocated requirements for the Archive, Access, and Distribution System portion of CLASS. These requirements are derived from the CLASS System Requirements with traceability matrices mapping requirement definitions in this document to those in the System Requirements document. These requirements and mappings are maintained in the DOORS requirements management tool. This document specifies the allocated requirements in terms of three main requirements categories: functional, performance, and operational.	
CAR521	1.1 Scope	
CAR520	This document presents the CLASS allocated requirements, focusing primarily on the following seven campaigns: 1) POES (Polar-orbiting Operational Environmental Satellites for NOAA and DOD) 2) GOES (Geostationary Operational Environmental Satellites) 3) NEXRAD (NEXt generation weather RADAR) 4) EOS/MODIS (Earth Observing System/Modern Operations Distributed Infrared Spectrometer) 5) NPP (NPOESS Preparatory Project) 6) METOP (European Meteorological Operational Satellite) 7) NPOESS (National Polar-Orbiting Operational Environmental Satellite System)	
CAR404	1.2 Definitions	
CAR405	Archive name - The name under which a data set is stored in the CLASS archive. It may be different from the name that was originally created by the data provider.	

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CAR406	Bulk Order - For CLASS, a bulk order is one created automatically in accordance with user-defined search criteria. All data sets that match the search criteria are automatically submitted as part of the bulk order. Bulk orders are processed at low priority and are used for large volumes of data that cannot be ordered conveniently through the user interface.	
CAR654	COMPANION_DATA_SET - An ancillary, auxiliary, or metadata file associated with one or more sensor or product data sets.	
CAR407	Customer - Individuals and organizations that receive data products directly from NOAA. NOAA makes data products available to the general public with exceptions specified in data access and distribution policies (e.g., OFAC and DoD restrictions, third party licenses and agreements, data denial during national crises, etc.).	
CAR655	DATA_PROVIDER_ICD - An Interface Control Document that defines the interface for receiving data from one provider. The ICD lists the types of data that CLASS receive for ingest, specifies file name conventions, and defines the means and protocol by which CLASS receives each type of data.	
CAR409	Data set - A data set is a collection of data that are ingested as a single unit. A data set may consist of one or more files that contain data and metadata, or it may consist of one or more related database tables.	
CAR656	DATA_SUBMISSION AGREEMENT - A document that records all agreements between NESDIS and a data provider regarding CLASS's handling of data from that provider. This document defines the following for one data provider: <ul style="list-style-type: none"> o the types of data that are provided to CLASS o rules and criteria for associating COMPANION_DATA_SETs with sensor or product data sets (e.g., what types of COMPANION_DATA_SETs may be associated with a given type of data set, and how the COMPANION_DATA_SETs associated with a given data set may be (identified.) o rules for handling duplicate data sets, replacement data sets, and multiple versions o the search options that CLASS supports for each type of data o the order and delivery options that CLASS supports for each type of data o requirements for restricting access to data o the process for managing collection level metadata o points of contact 	
CAR410	Ingest - To take in for storage, create an inventory entry and possibly, depending on the data type, extract and store data from which visualization products can be generated.	
CAR412	Inventory Catalog - A catalog that contains the unique description of all ingested data sets.	
CAR413	Large-array - In the context of CLASS, large-array data refers to remotely-sensed environmental data from any of the campaigns that are included in this system (see Section 1.1).	

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CAR414	High Availability - For CLASS, high availability refers to duplicate capabilities on equivalent hardware and software systems at two separate sites with dedicated high volume bandwidth connections. CLASS must be operational 24x7.	
CAR415	Order Confirmation E-mail - For CLASS, order confirmation e-mail refers to an e-mail sent to the customer when the order is completed. This e-mail generally contains instructions on how to retrieve the order.	
CAR416	Order Verification E-mail - For CLASS, order verification e-mail refers to an e-mail sent to the customer after an order starts processing. This e-mail is generally the order manifest.	
CAR417	Subscription Order - An order placed automatically for a newly ingested data set that meets user-defined criteria. These criteria, along with user identification and delivery instructions, constitute a subscription.	
CAR418	Visualization Products - A visual representation of a data set. Some visualization products, generally produced from a sampling of the data, are used as an aid to data selection. Others are final products that can be used for analysis.	
CAR419	Visualization tools - Tools that generate visualization products.	
CAR420	1.3 Degree of Compliance Required	
CAR421	This section defines the words used in this document to express level of compliance.	
CAR422	Shall - Absolute compliance is required. Exceptions can be taken only by a deviation or waiver to the specification.	
CAR423	Preferred or should - Use of an alternate must be justified.	
CAR424	May - The developer's selection is acceptable.	
CAR425	Will - This is a declaration by the client that some item or service will be available for use when needed.	
CAR426	And - In conjunction with "shall" specifically means that all actions are closely related and not independent in the effect on the system design or performance.	

ID	CLASS Allocated Requirements	Campaigns
CAR2	2 System Overview	
CAR427	2.1 Mission Overview	
CAR433	The CLASS mission is to use existing organizations, systems and technology to develop and administer a system that will electronically archive and distribute large-array data from several campaigns. CLASS will be developed as an evolutionary system; its capabilities will be implemented over time depending on requirements and critical dates.	
CAR432	2.2 System and Operations Concept	
CAR515	The system provides life cycle capabilities for archiving, distribution, preservation, and operation such that all approved campaign array-data may be preserved as defined by existing National Archives and Records Administration (NARA) and NESDIS archive policies, and distributed as requested to customers and for disaster recovery. The scope of these capabilities includes the ability to scale system functionality to continuous growth in campaigns and the preservation needs of the data.	
CAR516	The capabilities and characteristics of CLASS are discussed in the Concept of Operations for the Archive, Access, and Distribution System of CLASS.	
CAR517	2.3 System Functional Overview	
CAR518	The following diagram, Figure 1, shows the external interfaces between CLASS and the data providers and customers. It also shows the internal functions of the system, grouped into the four categories: Operation, Archiving, Preservation, and Distribution.	
CAR519 ...		

ID	CLASS Allocated Requirements	Campaigns
CAR519	<p>Comprehensive Large Array-data Stewardship System (CLASS)</p> <p>Archive, Access and Distribution System</p> <p>Operation (CLASS Project Management Team and Site Managers)</p> <p>Policy</p> <p>Reports</p> <p>Resources</p> <p>Archiving</p> <p>Ingest</p> <p>Near-line Archive</p> <p>Inventory Catalog</p> <p>Preservation</p> <p>Fail over</p> <p>Backup</p> <p>Disaster Recovery</p> <p>Migrate</p> <p>Distribution</p> <p>User Interface</p> <p>Order</p> <p>Subscriber</p> <p>Order Management System (OMS)</p> <p>Data Provider</p> <p>Customers</p>	
CAR522	Figure 1: Context Diagram	
CAR524	2.3.1 Archive, Access and Distribution	
CAR525	2.3.1.1 Archiving	
CAR526	Provides all aspects of receiving the data from data providers and making the data available to the rest of the system.	
CAR527	Ingest - Ingest takes in the data from the data providers, develops or extracts descriptive data about the data set, and, in some cases, extracts and stores on-line data that can be used for visualization product generation. Ingest stores the descriptive data in the inventory catalog.	
CAR528	Near-line archive - The archived data set is stored in a robotics archive that allows for electronic retrieval.	
CAR529	Inventory Catalog - The inventory catalog contains data set entries that describe data sets archived in the near-line storage system. The inventory catalog is used to provide on-line real-time search services to customers.	
CAR530	2.3.1.2 Distribution	

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CAR531	Encompasses all components needed to make data sets available to the user community. The user community may include external systems, which provide additional services employing the data.	
CAR532	User Interface - The user interface provides customers with Internet access to the active archive services. The services provide for the ability to find the data, display data sets that match search criteria, view visualization products and order the data.	
CAR533	Order - Data sets and derivative products are received and delivered. Data products consist of data generated through any additional manipulation to a source data set. The data provider must require that the products be generated, and must provide the tools to perform the conversion. Generally, this function provides the assembly of orders and the generation and delivery of requested products.	
CAR534	Subscriber - Special services are provided to some customers. These customers have the ability to have subscription orders executed as the data enters the system, or the ability to place bulk orders for large amounts of data.	
CAR535	2.3.1.3 Preservation	
CAR536	Provides the abilities to keep the data over years and to maintain the quality of the data.	
CAR537	Fail-over - Fail-over provides the ability to switch between operational sites in the event that one site stops operation.	
CAR538	Backup - Backup provides duplication of the files between CLASS sites. Duplication of the archive provides a geographically distributed backup capability. Automatic background processes synchronize the archive content in both CLASS sites, and annotate the inventory catalog that the data set is stored in both archives.	
CAR539	Disaster Recovery - In the case of catastrophic failures, the geographically distant files are used to bring the system back up to the current operational state.	
CAR540	Migrate - Migration of data is necessary as the technology changes or the media ages. Migration operations provide long-term data consistency.	
CAR541	2.3.1.4 Operation	
CAR542	Defines policies and procedures, analyzes the systems performance, and allocates resources.	
CAR543	Policy - Policies and procedures must be set to define how system operations are conducted across all sites. The policies and procedures provide detailed guides and operational rules, which must be followed by site managers and operators.	

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CAR544	Reports - Operational decisions require that statistics be provided in effective, clear reports for resource management, policy revisions, and for the extension of services to additional campaigns.	
CAR545	Resources - Resources are managed across the different operational sites, based on defined policies and procedures and system reports.	
CAR547	2.3.2 Order Management	
CAR548	Provides the billing, accounting, and order tracking capabilities for applicable orders. The applicable orders include physical orders. This function manages all financial aspects of the system.	
CAR549	Order Processing - Provide the capability for the customer to pay at the time of placing an order or to have a prepaid account from which payment is deducted. Prepaid accounts are defined for individuals or organizations.	
CAR550	Payment tracking - Provides the capability to enter user-provided payment options, perform automatic credit card verification, and credit or debit accounts accordingly.	
CAR551	Customer Data Processing - Provides the capability to report financial information related to transaction processes and financial transactions, perform the receipt and transfer of credit card transactions, and produce required financial reports.	
CAR552	2.4 External Interfaces	
CAR553	There are six major external interfaces for the system.	
CAR554	1) Remote electronic data provider provides data files for ingest processing.	
CAR555	2) Customer accesses through a standard Internet interface.	
CAR556	3) Customer accesses help desk through e-mail	
CAR557	4) Customer receives delivery by electronic transfers.	
CAR558	5) The Archive, Access and Distribution System interfaces with the Order Management System for order authorization.	
CAR559	6) The Archive, Access and Distribution System interfaces with the Order Management System for media delivery.	

ID	CLASS Allocated Requirements	Campaigns
CAR3	3 System Requirements	
CAR4	3.1 Functional Requirements	
CAR5	3.1.1 Archive and Distribution Functional Requirements	
CAR6	3.1.1.1 Archiving	
CAR7	3.1.1.1.1 Ingest	
CAR8	3.1.1.1.1.1 File Receipt	
CAR9	The system shall recognize new RADARSAT_DATA data files at ASF or NIC and obtain those files.	POES
CAR10	The system shall recognize new CLASS_POLAR_ORBITER_DATA data files on CEMSCS and obtain those files.	POES
CAR11	The system shall recognize new CLASS_PRODUCT_DATA data files on their source hosts and retrieve those data files.	POES
CAR12	The system shall recognize CLASS_PRODUCT_DATA data files on the local system (from FTP push.)	POES
CAR657	CLASS shall be able to pull data from each data provider in accordance with the interface specifications in the relevant DATA_PROVIDER_ICD.	CLASS
CAR658	CLASS shall be able to accept data pushed by each data provider in accordance with the interface specifications in the relevant DATA_PROVIDER_ICD.	CLASS
CAR659	CLASS shall accept only data sets with names that conform to patterns defined for each data provider in the DATA_PROVIDER_ICD for that data provider	CLASS
CAR13	File Transfer: The system shall initiate the transfer of a file from a remote site only after ensuring that the file is ready to be transferred.	CLASS
CAR14	Leader and Trailer File Copies: In cases where a RADARSAT_DATA leader or trailer file root name (i.e., the file name without the last qualifier) is a substring of a data file root name, the system shall recognize that leader or trailer file to belong to the same data set as the data file and shall copy that leader or trailer file to a new file whose root name is the same as that of the data file.	POES
CAR15	Record of File Receipt: The system shall record the receipt of each data file received.	CLASS
CAR16	Record of Data Set Receipt: The system shall record the receipt of a data set after all the required files for the data set (e.g., data, leader, trailer) have been received.	CLASS
CAR17	Ephemeris Updates: The system shall receive and store daily ephemeris updates from CEMSCS for processing CLASS_POLAR_ORBITER_DATA.	POES
CAR18	The system shall be able to receive SEAWIFS_DATA from the OCEAN_COLOR_SERVER.	POES
CAR312	The system shall automatically notify the data provider when it determines that the integrity of a received file is in question.	CLASS

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CAR313	Upon receipt of notification from the data provider that the previously pulled file whose integrity was in question has been remedied, the system shall pull and reprocess a file that was previously pulled.	CLASS
CAR577	The system shall become aware of new CLASS_GOES_DATA data files on their source hosts and retrieve those files by push or pull ftp, as negotiated with the data provider.	GOES
CAR579	The components of CLASS_GOES_DATA are the Imager and Block 11 data in GVAR format and the Sounder data in McIDAS area format.	GOES
CAR580	The file name format for CLASS_GOES_DATA Imager files will be as follows: goesSS.YYYY.DDD.HHMMss where SS = Satellite Number (currently 08, 09 and 10) YYYY = 4 digit year. DDD = Day of Year HH = Hour (00-23) MM = Minute (00-59) ss = Second (00-59) All times shall be UTC based.	GOES
CAR582	The file name format for CLASS_GOES_DATA Sounder files will be as follows: goesSS.YYYY.DDD.HHMMss.sndr where SS = Satellite Number (currently 08, 09 and 10) YYYY = 4 digit year. DDD = Day of Year HH = Hour (00-23) MM = Minute (00-59) ss = Second (00-59) All times shall be UTC based.	GOES
CAR583	The file name format for CLASS_GOES_DATA Block 11 files will be as follows: gSS.YYYY.DDD.HH where SS = Satellite Number (currently 08, 09 and 10) YYYY = 4 digit year. DDD = Day of Year HH = Hour (00-23) All times shall be UTC based.	GOES
CAR19	3.1.1.1.1.2 File Processing	
CAR20	The system shall automatically initiate the ingest of CLASS_PRODUCT_DATA data files received via push or pull.	POES
CAR21	The system shall automatically initiate the ingest of CLASS_POLAR_ORBITER_DATA data files received via push or pull.	POES
CAR22	Multiple Concurrent Ingests: The system shall be able to ingest multiple data sets of the same type or different types concurrently.	CLASS
CAR23	Renaming: The system shall rename each file, regardless of provider, to a common naming convention for archive. This new name will be referred to as the data sets archive name.	CLASS
CAR24	Image Files: The system shall have the capability to generate browse image files for AVHRR data sets.	POES
CAR25	For CLASS_PRODUCT_DATA data sets, the system shall create the required visualization support files (e.g., netCDF and descriptor files).	POES

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CAR26	For CLASS_PRODUCT_DATA data sets, the system shall store metadata required to convert the binary data into the visualization support files.	POES
CAR27	The system shall support the re-ingest of multiple CLASS_PRODUCT_DATA data files from near-line storage.	POES
CAR660	CLASS shall be able to ingest a COMPANION_DATA_SET set that has the same name as a previously ingested COMPANION_DATA_SET from the same data provider. CLASS will handle such a COMPANION_DATA_SET in accordance with rules specified in the relevant DATA_SUBMISSION_AGREEMENT.	CLASS
CAR661	In the event that a COMPANION_DATA_SET from one data provider has the same name as a file received from a different data provider, the new COMPANION_DATA_SET will be assigned a unique name.	CLASS
CAR28	File Unpackaging The system shall invoke an appropriate unpackaging program to process packaged or compressed files.	CLASS
CAR340	The system shall notify the data provider when it recognizes that a data set fails to meet pre-established quality criteria. These criteria will be established for each data type by agreement between NESDIS and the data provider.	CLASS
CAR29	The system shall be able to receive e-mail messages from the OCEAN_COLOR_SERVER indicating the names and sizes of files transferred.	POES
CAR30	The system shall verify that all the files named in such a message are received and are of the correct size.	CLASS
CAR31	The system shall notify the OCEAN_COLOR_SERVER via e-mail if any expected file is not received or any received file is not of the expected size.	POES
CAR32	Scan Line Sequences: For CLASS_POLAR_ORBITER_DATA data sets, for purposes of determining the data start and end times and detecting gaps in browse images, the system shall accept only scan lines that are part of a valid sequence, where a valid sequence is defined as a set of at least N scan lines with regularly incrementing time tags. The minimum number of scan lines in a valid sequence (N) shall be a configurable parameter.	POES
CAR33	The system shall perform quality checks (as relates to CLASS) on CLASS_PRODUCT_DATA update files.	POES
CAR34	For a given CLASS_PRODUCT_DATA data set, all the visualization support files shall be identical in format.	POES
CAR35	The system shall be able to specify a variable(s) as fill or no data available. (For re-ingest purposes when changing the visualization support files.)	CLASS
CAR36	The system shall support requests for the re-creation of CLASS_PRODUCT_DATA visualization support files that have been removed.	POES
CAR37	The system shall support, for a configurable time limit, requests for the re-creation of visualization files that have been removed.	CLASS
CAR38	Data Set Validation: The system shall determine the quality of each data set. The method for determining the quality of a data set of a given type will be established by agreement between NESDIS and the data provider.	CLASS

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CAR39	Image File Source Link: For CLASS_POLAR_ORBITER_DATA data sets, if browse image files are created from a data set, the inventory record for that data set shall include a flag indicating that browse images are available as well as all information required to locate the image files.	POES
CAR40	Image File Bins: For CLASS_POLAR_ORBITER_DATA data sets, if browse image files are created from a data set, the system shall determine the number of the first bin and the number of bins covered by the image.	POES
CAR344	The system shall compute the checksum of each file that belongs to a data set.	CLASS
CAR345	The system shall store the computed checksums for all of a data sets files in the inventory catalog.	CLASS
CAR584	The system shall automatically initiate the ingest of CLASS_GOES_DATA data files received via push or pull.	GOES
CAR585	Image Files: The system shall have the capability to generate browse image files for CLASS_GOES_DATA data sets. These images will be generated from a Full Disk scan every 3 hours for each GOES satellite being archived. Three images will be produced: one for visible (channel 1), one for Water Vapor (WV) (channel 3) and one for long-wave IR (channel 4). A 16km spatial resolution and 8 bit precision will be used for all browse images.	GOES
CAR586	Image File Source Link: For CLASS_GOES_DATA data sets, if browse image files are created from a data set, the inventory record for that data set shall include a flag indicating that browse images are available as well as all information required to locate the image files.	GOES
CAR41	3.1.1.1.2 Inventory Catalog	
CAR42	Data Set Validation: The system shall inventory data sets which produced no processing errors (I/O errors or errors in data values).	CLASS
CAR43	Inventory ID: The system shall store in the inventory an Inventory ID as a unique numerical value for each data set.	CLASS
CAR44	Date Ingested: The system shall store in the inventory the date and time of ingest as determined from the system date (local time) at the time of ingest.	CLASS
CAR45	Uniqueness: The system shall inventory each unique CLASS_POLAR_ORBITER_DATA data set (as determined by the data set name) only once. If an inventory record already exists for a given ingested data set, that record shall be replaced by a new record.	POES
CAR315	For each CLASS_POLAR_ORBITER_DATA data set, the system shall store in the inventory descriptive data for that data set. The descriptive data stored for a given data type will be determined by agreement between NESDIS and the data provider.	POES
CAR46	Start Date/Time: For CLASS_POLAR_ORBITER_DATA data sets, the system shall store in the inventory the start date and time.	POES
CAR47	End Date/Time: For CLASS_POLAR_ORBITER_DATA data sets, the system shall store in the inventory the end date and time.	POES

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CAR48	Satellite ID: For CLASS_POLAR_ORBITER_DATA data sets, the system shall store in the inventory the satellite ID.	POES
CAR49	Orbit Number: For CLASS_POLAR_ORBITER_DATA data sets, the system shall store in the inventory the number of each orbit covered by the data set.	POES
CAR50	Ascending/Descending: For CLASS_POLAR_ORBITER_DATA data sets, the system shall store in the inventory the ascending/descending flag.	POES
CAR51	Original Data Set Name: For CLASS_POLAR_ORBITER_DATA data sets, the system shall store in the inventory the original data set name.	POES
CAR52	Archive Data Set Name: For CLASS_POLAR_ORBITER_DATA data sets, the system shall store in the inventory the assigned archive data set name.	POES
CAR53	Distribution Site: For CLASS_POLAR_ORBITER_DATA data sets, the system shall store in the inventory a distribution flag to indicate the site at which the data set is available.	POES
CAR54	Image File Bins: For CLASS_POLAR_ORBITER_DATA data sets, if browse image files are created from a data set, the inventory record for that data set shall include the number of the first bin and the number of bins covered by the image.	POES
CAR55	Gap Flag: For CLASS_POLAR_ORBITER_DATA data sets, the inventory shall include a flag indicating whether the data set contains gaps.	POES
CAR56	Time Flags: For CLASS_POLAR_ORBITER_DATA data sets, the inventory shall include a flag indicating that the start and end times determined from the first and last accepted data records match the start and end times in the data set header.	POES
CAR57	Receiving Station: For CLASS_POLAR_ORBITER_DATA data sets, the inventory shall include an identifier of the Receiving Station.	POES
CAR58	Data Set Size: For CLASS_POLAR_ORBITER_DATA data sets, the inventory shall include the data set size in Kilobytes.	POES
CAR59	Geographic Information: For CLASS_POLAR_ORBITER_DATA data sets, the inventory shall include ephemeris data needed to geolocate the data set.	POES
CAR314	For each RADARSAT_DATA data set, the system shall store in the inventory descriptive data for that data set. The descriptive data stored for a given data type will be determined by agreement between NESDIS and the data provider.	POES
CAR60	Uniqueness: The system shall be able to ingest a RADARSAT_DATA data set multiple times, each time under a unique archive name.	POES
CAR61	Start Date/Time: For each RADARSAT_DATA data set, the system shall store in the inventory the start date and time as determined from the Processed Data Records in the data set's Data File.	POES

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CAR62	End Date/Time: For each RADARSAT_DATA data set, the system shall store in the inventory the end date and time as determined from the Processed Data Records in the data set's Data File.	POES
CAR63	Satellite ID: For each RADARSAT_DATA data set, the system shall store in the inventory the satellite ID as retrieved from the Data Set Summary Record.	POES
CAR64	Orbit Number: For each RADARSAT_DATA data set, the system shall store in the inventory the orbit number as retrieved from the Data Set Summary Record.	POES
CAR65	Processing Site: For each RADARSAT_DATA data set, the system shall store in the inventory the processing site as determined by the system directory in which the data set resides.	POES
CAR66	Beam Mode: For each RADARSAT_DATA data set, the system shall store in the inventory the beam mode as determined from the Data Set Summary Record for data sets from Alaska and from the Radiometric Compensation Data Record for data sets from Canada and Norway.	POES
CAR67	Beam Position: For each RADARSAT_DATA data set, the system shall store in the inventory the beam position as determined from the Data Set Summary Record for data sets from Alaska and from the Radiometric Compensation Data Record for data sets from Canada and Norway.	POES
CAR68	Ascending/Descending: For each RADARSAT_DATA data set, the system shall store in the inventory the ascending/descending flag as retrieved from the Data Set Summary Record.	POES
CAR69	Corner Latitudes and Longitudes: For each RADARSAT_DATA data set, the system shall store in the inventory the four corner point latitudes and longitudes as determined from the Processed Data Records. If the values cannot be determined from the Processed Data Records, they shall be retrieved from the Facility Data Record for non-geocoded data and all ASF data, and from the Map Projection Record for geocoded Canada or Norway data.	POES
CAR70	Minimum and Maximum Latitudes and Longitudes: For each RADARSAT_DATA data set, the system shall store in the inventory the minimum and maximum latitude and longitude extent as determined from the Processed Data Records. For a given data set, if the values cannot be determined from the Processed Data Records, they shall be determined from the data sets four corners.	POES
CAR71	Data Set Size: For each RADARSAT_DATA data set, the system shall store in the inventory the data set size as determined by adding together the size in Kilobytes of the data file and all accompanying metadata files.	POES
CAR72	Product Type: For each RADARSAT_DATA data set, the system shall store in the inventory the product type as determined by checking the data set for the presence of a Map Projection Record. The product type will be “geocoded” if a Map Projection Record exists, otherwise the product type will be “georeferenced.”	POES

ID	CLASS Allocated Requirements	Campaigns
CAR73	Pixel Spacing: For each RADARSAT_DATA data set, the system shall store in the inventory the pixel spacing as retrieved from the Data Set Summary Record.	POES
CAR74	Calibration Status: For each RADARSAT_DATA data set, the system shall store in the inventory the Calibration Status as retrieved from the Data Quality Summary Record.	POES
CAR341	Original Data Set Name: For RADARSAT_DATA data sets, the system shall store in the inventory the original data set name.	POES
CAR75	Data Set Name: For each RADARSAT_DATA data set, the system shall store in the inventory the assigned archive data set name of the data set's Data File.	POES
CAR76	Distribution Site: For each RADARSAT_DATA data set, the system shall store in the inventory a distribution site identifier to indicate the site at which the data set is available.	POES
CAR342	Original Data Set Name: For CLASS_PRODUCT_DATA data sets, the system shall store in the inventory the original data set name.	POES
CAR343	Data Set Name: For each CLASS_PRODUCT_DATA data set, the system shall store in the inventory the assigned archive data set name.	POES
CAR77	For each CLASS_PRODUCT_DATA data set, the system shall store metadata by which the temporal extent can be determined. (Metadata refers to the information regarding a product data set, i.e., collection of data files, such as the visualization file format, record layout of binary file, and spatial coverage.)	POES
CAR78	The system shall store metadata by which the spatial coverage of each CLASS_PRODUCT_DATA data set can be determined.	POES
CAR79	For each CLASS_PRODUCT_DATA data set, the system shall store in the inventory descriptive data for that data set. The descriptive data stored for a given data type will be determined by agreement between NESDIS and the data provider.	POES
CAR316	Data Set Size: For each CLASS_PRODUCT_DATA data set, the system shall store in the inventory the data set size as determined by adding together the size in Kilobytes of the data file and all accompanying metadata files.	POES
CAR317	Distribution Site: For each CLASS_PRODUCT_DATA data set, the system shall store in the inventory a distribution site identifier to indicate the site at which the data set is available.	POES
CAR80	The system store quality metrics for each data set in the inventory catalog.	CLASS
CAR81	For CLASS_PRODUCT_DATA, the system shall store metadata on product groupings and disciplines.	POES
CAR318	The system shall perform periodic verification that the inventory database matches the site archives.	CLASS

ID	CLASS Allocated Requirements	Campaign s
CAR662	CLASS shall store a COMPANION_DATA_SET's original name and its assigned archive nameing the inventory catalog.	CLASS
CAR663	The inventory shall identify the type of each archived COMPANION_DATA_SET.	CLASS
CAR664	The inventory shall contain information that will enable identification of the COMPANION_DATA_SETs that are associated with a given data set, such identification to bedone in accordance with rules and criteria specified in the relevant DATA_SUBMISSION_AGREEMENT.	CLASS
CAR665	The inventory shall contain information that will support the selection of COMPANION_DATA_SETs from a given data provider according to selection criteria specified in the DATA_SUBMISSION_AGREEMENT for that data provider.	CLASS
CAR666	The system shall store the size of each COMPANION_DATA_SET in the inventory.	CLASS
CAR667	The inventory shall identify the CLASS sites at which each data set or COMPANION_DATA_SET is archived.	CLASS
CAR587	Uniqueness: The system shall inventory each unique CLASS_GOES_DATA data set (as determined by the data set name) only once. If an inventory record already exists for a given ingested data set, the system shall (TBD PROCESS).	GOES
CAR588	For each CLASS_GOES_DATA data set, the system shall store descriptive data for that data set. The descriptive data stored for a given data type will be determined by agreement between NESDIS and the data provider.	GOES
CAR589	Date/Time: For CLASS_GOES_DATA data sets, the system shall store the UTC date and time of the start of the scan, which is specified in the data set name.	GOES
CAR590	Satellite ID: For CLASS_GOES_DATA data sets, the system shall store the satellite ID.	GOES
CAR591	Original Data Set Name: For CLASS_GOES_DATA data sets, the system shall store the data provider's original data set name.	GOES
CAR592	Archive Data Set Name: For CLASS_GOES_DATA data sets, the system shall store the assigned archive data set names.	GOES
CAR593	The archive data set name for CLASS_GOES_DATA shall be identical to the current naming convention used at NCDC.	GOES
CAR594	Distribution Site: For CLASS_GOES_DATA data sets, the system shall store a distribution flag to indicate the distribution site at which the data set is available for distribution. Valid distribution sites include Asheville and Suitland.	GOES
CAR595	Gap Flag: For CLASS_GOES_DATA data sets, the system shall store a flag indicating whether the data set has any bad or missing data points.	GOES

ID	CLASS Allocated Requirements	Campaigns
CAR596	Gap Description: For CLASS_GOES_DATA data sets, the system shall store detailed information regarding the gaps present in a data set.	GOES
CAR597	Data Set Size: For CLASS_GOES_DATA data sets, the system shall store the data set size in bytes.	GOES
CAR598	Scan Sectors: For CLASS_GOES_DATA data sets, the system shall store the scan sector associated with a particular data set. Valid scan sectors include Northern Hemisphere, Southern Hemisphere, Continental United States, Full Disk, Gulf of Mexico, Special, and Other.	GOES
CAR599	Geographic Coverage: For each CLASS_GOES_DATA data set, the system shall store the four corner points using latitude and longitude as determined from the data file.	GOES
CAR600	Schedule: For CLASS_GOES_DATA data sets, the system shall store the schedule associated with a particular data set. Valid schedules include Routine, Rapid Scan Operation (RSO), Super Rapid Scan Operation (SRSO) and other special events.	GOES
CAR601	Receiving Station: For CLASS_GOES_DATA data sets, the system shall store the identifier of the Receiving Station.	GOES
CAR603	<p>GOES Statistics: For each GOES Imager dataset, the system shall store basic scene statistical information, including:</p> <ul style="list-style-type: none"> • Maximum value • Minimum value • Average value • Variance • Total number of pixels used in the calculation • Total number of null pixels in scene • Calibration coefficients (slope and intercept values) for all IR bands 	GOES
CAR82	3.1.1.1.3 Near-line Archive	
CAR83	Local Cache: The system shall be able to store successfully ingested data sets in a local cache from which orders may be filled. The retention time for a file in the local cache shall be a configurable datatype-dependent parameter.	CLASS
CAR84	The system shall provide the capability to archive successfully ingested data sets in a local near-line storage facility.	CLASS
CAR85	The system shall support multiple mass storage devices for on-line access.	CLASS
CAR86	The system shall support multiple robotics storage devices as near-line access.	CLASS
CAR87	3.1.1.2 Distribution	
CAR88	3.1.1.2.1 User Interface	
CAR89	The system shall provide a WWW interface through which users may search the contents of the inventory and order data.	CLASS

ID	CLASS Allocated Requirements	Campaigns
CAR90	Clearing Input: The interface shall allow the user to clear his screen input and return to the display of initial or default values.	CLASS
CAR91	The interface shall provide the user with links to navigate back and forth between screens with minimal use of the browser's BACK button.	CLASS
CAR92	The interface shall provide the user with links to navigate back and forth between data set families in the displays of search criteria, search results, and orders.	CLASS
CAR93	The system shall accept user orders submitted through the WWW interface.	CLASS
CAR94	The system shall accept orders from the OCEAN_COLOR_SERVER for SEAWIFS_DATA.	POES
CAR95	The interface shall validate all user input for correctness.	CLASS
CAR96	3.1.1.2.1.1 Customer Registration and Customer Profile	
CAR97	The interface shall support user registration for ordering data.	CLASS
CAR319	The system shall require a customer to register before allowing that customer to order data.	CLASS
CAR320	The system shall require a customer to provide a valid e-mail address before allowing the customer to register.	CLASS
CAR98	Creating User Profile: The interface shall allow the user to create his user profile.	CLASS
CAR99	Updating User Profile: The interface shall allow the user to modify his user profile information.	CLASS
CAR321	Default Options: The user profile shall contain default values for delivery and order notification options.	CLASS
CAR322	The system shall require a customer to log in with a valid user ID and password before allowing that customer to order data.	CLASS
CAR100	3.1.1.2.1.2 Security	
CAR101	The interface shall require the entry of a user ID and password for access to protected data.	CLASS
CAR102	3.1.1.2.1.3 Search	
CAR103	Search Criteria: The interface shall allow users to search the data sets of a given type in the inventory using the criteria defined for that data type.	CLASS
CAR104	Date/Time Range Format Verification: The interface shall verify that the user's start date/time is earlier than his end date/time and shall report an error to the user if it is not. The time values shall also be verified to ensure that they are in the proper format and are legitimate time values.	CLASS
CAR105	Latitude Range Format Verification: The interface shall verify that the user's northern latitude is to the north of the user's southern latitude and shall report an error to the user if it is not.	CLASS

ID	CLASS Allocated Requirements	Campaigns
CAR106	Longitude Range Format Verification: If the user has specified spatial criteria that is not the entire globe, the interface shall allow the user to enter a longitude range that is up to some configurable parameter and shall report an error to the user if it is not.	CLASS
CAR107	The user shall be able to zoom in or out on a selected region of the map.	CLASS
CAR108	The user shall be able to select spatial search criteria by interactively drawing a region bounded by lines of constant latitude and longitude.	CLASS
CAR109	Dataset Name Format Verification: The interface shall verify that a data set name entered by the user matches the format defined in the data set inventory and shall report an error to the user if it does not.	CLASS
CAR110	Saving Search Criteria: The interface shall allow a user to save his search criteria for later use.	CLASS
CAR111	Loading Search Criteria: The interface shall allow a user to reload previously saved criteria.	CLASS
CAR112	Submitting Search Request: The interface shall provide the user with the ability to search across all inventories with one submit action or to limit the search to the current visible inventory family.	CLASS
CAR113	Response Times: The interface shall provide search results to the user within a configurable time period after submission of a search or shall time-out with an error message to the user.	CLASS
CAR114	Search Cancellation: The interface shall provide the user with the ability to cancel an inventory search.	CLASS
CAR115	Inventory Family Selection: The interface shall allow users to select a set of CLASS_POLAR_ORBITER_DATA inventory families to search.	POES
CAR116	Criteria: The system shall allow a user to search for CLASS_POLAR_ORBITER_DATA data sets in the inventory that match a given data set name pattern or that meet a set of search criteria (as defined below). The system will perform a search based only on the data set name pattern if one is supplied by the user, otherwise the search will be based on the remaining search criteria.	POES
CAR117	The system shall allow a user to search for CLASS_POLAR_ORBITER_DATA data sets that match a given data set name pattern.	POES
CAR118	Temporal Criteria: The system shall allow a user to search for all CLASS_POLAR_ORBITER_DATA data sets that fall within a date/time range. If the user does not specify any temporal criteria, the default value shall be the past seven days.	POES
CAR119	Spatial Criteria: The system shall allow a user to search for all CLASS_POLAR_ORBITER_DATA data sets whose area of coverage intersects, encompasses or is enclosed within an area bounded by the user's spatial criteria. The data set's area of coverage shall be defined by the existing geographic search algorithm. The spatial criteria shall be northernmost latitude, southernmost latitude, easternmost longitude and westernmost longitude. The default search area shall be the entire globe.	POES
CAR120	Satellite ID: The system shall allow a user to search for all CLASS_POLAR_ORBITER_DATA data sets matching one or more satellite IDs. If the user does not specify any satellite IDs, the default value shall be all satellite IDs offered in the inventory.	POES

ID	CLASS Allocated Requirements	Campaigns
CAR121	Data Type: The system shall allow a user to search for all CLASS_POLAR_ORBITER_DATA data sets matching one or more data types.	POES
CAR122	Receiving Station: The system shall allow a user to search for all CLASS_POLAR_ORBITER_DATA data sets with a given receiving station. If the user does not specify any receiving station, the default value shall be all receiving stations.	POES
CAR124	Criteria: The system shall allow a user to search for RADARSAT_DATA data sets in the inventory that match a given data set name pattern or that meet a set of search criteria (as defined below). The system will perform a search based only on the data set name pattern if one is supplied by the user, otherwise the search should be based on the remaining search criteria.	POES
CAR125	The system shall allow a user to search for RADARSAT_DATA data sets with a given data set name pattern.	POES
CAR126	Temporal Criteria: The system shall allow a user to search for all RADARSAT_DATA data sets that fall within a date/time. If the user does not specify any temporal criteria, the default value shall be the past seven days.	POES
CAR127	Spatial Criteria: The system shall allow a user to search for all RADARSAT_DATA data sets whose area of coverage intersects, encompasses or is enclosed within an area bounded by the user's spatial criteria. The data set's area of coverage shall be defined by its minimum and maximum latitude and longitude extents. The spatial criteria shall be northernmost latitude, southernmost latitude, easternmost longitude and westernmost longitude. The default search area shall be the entire globe.	POES
CAR128	Satellite ID: The system shall allow a user to search for all RADARSAT_DATA data sets matching one or more satellite IDs. If the user does not specify any satellite IDs, the default value shall be all satellite IDs offered in the inventory.	POES
CAR129	Processing Site: The system shall allow a user to search for all RADARSAT_DATA data sets matching one or more processing sites. If the user does not specify any processing sites, the default value shall be all processing sites offered in the inventory.	POES
CAR130	Beam: The system shall allow a user to search for all RADARSAT_DATA data sets matching one or more beam modes, and within each of those beam modes one or more beam positions. If the user does not specify any beam modes, the default value shall be all beam modes offered in the inventory. If the user selects a beam mode but does not select any beam positions in that mode, the default value shall be all beam positions of that beam mode offered in the inventory.	POES
CAR131	Criteria: The system shall allow a user to search for CLASS_PRODUCT_DATA data sets in the inventory that match a given data set name pattern or that meet a set of search criteria (as defined below). The system will perform a search based only on the data set name pattern if one is supplied by the user, otherwise the search should be based on the remaining search criteria.	POES
CAR323	The system shall allow a user to search for CLASS_PRODUCT_DATA data sets with a given data set name pattern.	POES
CAR132	The interface shall allow users to select a type of CLASS_PRODUCT_DATA, the variables to be displayed, and the format of the display.	POES
CAR133	Product Data Type: The system shall allow a user to search for CLASS_PRODUCT_DATA of a specified type.	POES

ID	CLASS Allocated Requirements	Campaigns
CAR134	Temporal Criteria: The system shall allow a user to search for CLASS_PRODUCT_DATA that fall within a date/time range.	POES
CAR135	Spatial Criteria: The system shall allow a user to search for CLASS_PRODUCT_DATA covering an area bounded by the user's spatial criteria.	POES
CAR136	Discipline: The system shall allow a user to search for CLASS_PRODUCUT_DATA that fall within a discipline.	POES
CAR137	Upon the user submitting an inventory search, the interface shall display a list of all data sets that match the user's search criteria.	CLASS
CAR138	The interface shall provide a link to information maintained in the inventory on each individual data set from the search results display.	CLASS
CAR139	The interface shall provide the user with information on the geographic location of each data set within the search results display.	CLASS
CAR327	The system shall support the visualization of data sets. The types of visualization to be supported for each data type will be defined by agreement between NESDIS and the data provider.	CLASS
CAR140	The interface shall provide a browse image for a CLASS_POLAR_ORBITER_DATA data set when available.	POES
CAR141	The interface shall allow the user to enhance the browse image for CLASS_POLAR_ORBITER_DATA data sets by changing among supported channels, changing the brightness and/or contrast, and by selecting for histogram equalization of the image.	POES
CAR142	The system shall support multiple visualization tools for CLASS_PRODUCT_DATA.	POES
CAR143	The system shall support interactive data viewers for CLASS_PRODUCT_DATA.	POES
CAR144	The system shall support user control of scaling and contours for visualization of CLASS_PRODUCT_DATA.	POES
CAR145	The user shall be able to view search criteria associated with active search results.	CLASS
CAR326	The system shall provide the user with the ability to save or print a listing of each set of search results. This listing shall include the search criteria associated with that search.	CLASS
CAR146	The system shall support processing for the re-generation of visualization support files. If a visualization file is not available on-line, the system shall make that file available.	CLASS
CAR324	All cataloged data sets shall be available for search and distribution to approved customers.	CLASS
CAR325	If a given data set does not have a value for a specific descriptive data item specified by the user as a search criteria, the system's search shall consider that criteria to have been met for that data set.	CLASS
CAR604	Temporal Criteria: The system shall allow a user to search for all CLASS_GOES_DATA data sets in the inventory that fall within a user-specified date/time range. If the user does not specify any temporal criteria, the default value shall be the current day.	GOES

ID	CLASS Allocated Requirements	Campaign s
CAR605	<p>The user interface shall permit dates to be entered either via the keyboard or a mouse selection. The acceptable format for keyboard entered dates shall be “YYYY-MM-DD HH:MM:SS”, where</p> <p>YYYY is the four digit year</p> <p>MM is the number of the month (1-12)</p> <p>DD is the day of the month (1-31).</p> <p>HH:MM:SS is the hour, minute and second in UTC time.</p>	GOES
CAR606	<p>The user interface shall provide the capability to set a default ending time and date for time range search, which is the current time and date, if the user does not input an ending date and time.</p>	GOES
CAR607	<p>The user interface shall permit the following types of temporal searches for CLASS_GOES_DATA:</p> <ul style="list-style-type: none"> • provide search results from the start date and time through the ending date and time • provide search results from the start date to the end date but only between the start time and end time for each day. 	GOES
CAR608	<p>Spatial Criteria: The system shall allow a user to search for all CLASS_GOES_DATA data sets whose area of coverage intersects, encompasses or is enclosed within an area bounded by the user’s spatial criteria. The data set’s area of coverage shall be defined by it minimum and maximum latitude and longitude extents. The spatial criteria shall be northernmost latitude, southernmost latitude, easternmost longitude and westernmost longitude. The default search area shall be the entire globe.”</p>	GOES
CAR609	<p>Data Type: The system shall allow the user to select one or more of the data types associated with CLASS_GOES_DATA data sets. These include the imager, sounder and Block 11 files. Imager will be the default selection.</p>	GOES
CAR610	<p>Satellite ID: The system shall allow the user to select one or more GOES satellites in search criteria for CLASS_GOES_DATA. The default setting is to include all satellites in the search criteria, if the user does not specify a satellite.</p>	GOES
CAR611	<p>Scan Sector: The system shall allow the user to specify the CLASS_GOES_DATA scan sector. Typical scan sectors include:</p> <ul style="list-style-type: none"> • CONUS (Conterminous United States) • FD (Full Disk) • NH (Northern Hemisphere) • SH (Southern Hemisphere) • Other <p>The default will be all scan sectors selected.</p>	GOES
CAR612 ...	<p>The system shall provide the following information on the CLASS_GOES_DATA search results page:</p> <ul style="list-style-type: none"> • Data type name (Imager, Sounder, Block 11) • Archive file size • Date and Start Time of scan • Satellite Schedule (Routine, RSO, SRSO) • Coverage (CONUS, FD, NH, SH, Other) 	GOES

ID	CLASS Allocated Requirements	Campaigns
CAR612	<ul style="list-style-type: none"> • Data Quality/Comments • Latitude/Longitude • Browse Image Flag 	
CAR613	<p>Satellite Schedule: The system shall allow the user to select one or more satellite schedule modes. The schedule modes will include:</p> <ul style="list-style-type: none"> • Routine • RSO • SRSO <p>The default will be having all schedules selected.</p>	GOES
CAR614	For every scene in the CLASS_GOES DATA search result data set for which there are no browse images available, the system shall provide the browse images that were captured at the closest proximity in time to the scene in question in order to allow users to reasonably preview the data.	GOES
CAR147	3.1.1.2.1.4 Order Submission	
CAR148	The interface shall allow the user to select data sets for order from the search results display.	CLASS
CAR149	The interface shall support submission of orders for multiple items to the delivery system.	CLASS
CAR150	Before final order submission, the interface shall display a list of all data sets selected for order from the search results.	CLASS
CAR151	The interface shall allow the user to deselect items from the order selection list.	CLASS
CAR152	Upon order submission by the user, the interface shall display the order number to the user.	CLASS
CAR153	The interface shall provide a mechanism that allows the user to submit selections from multiple inventory searches as one single order.	CLASS
CAR154	The interface shall allow a user to display the status of his orders for a configurable number of days. The display shall contain information on both orders and line items. The display shall contain a count of all line items currently in progress.	CLASS
CAR155	Send User Order Verification: The system shall allow the user to associate comments to any order or line item within an order. These comments will be sent to the user as part of the order verification message	CLASS
CAR156	Provide Order Status: The system shall provide order status information when requested by the user.	CLASS
CAR157	Provide Line Item Status: The system shall provide the user with information for each line item, when requested.	CLASS
CAR158	For each ordered selection, the system shall be able to provide the user with sufficient information to allow that user to reproduce a search containing that selection as a search result.	CLASS
CAR159	3.1.1.2.1.5 Customer Support	

ID	CLASS Allocated Requirements	Campaigns
CAR160	Error Reporting: User generated errors shall be explained in messages sent to the user.	CLASS
CAR161	The interface shall provide access to documentation provided by NCDC.	CLASS
CAR162	The interface shall provide online help text with instructions on the use of each page and the definitions of technical terms.	CLASS
CAR163	Server Down: The interface shall notify users if any server is down or in a hold state.	CLASS
CAR328	The system shall support an e-mail based help desk to respond to customer inquiries.	CLASS
CAR164	3.1.1.2.2 Order Processing	
CAR165	3.1.1.2.2.1 Customer Options	
CAR166	The interface shall display a configurable list of supported delivery formats for CLASS_PRODUCT_DATA.	POES
CAR167	The interface shall support browser delivery of CLASS_PRODUCT_DATA based on configurable values for quantity of files, location, and output data format.	POES
CAR168	The system shall support subsetting of CLASS_PRODUCT_DATA requested in a user order (except native format.)	POES
CAR169	Order Verification Option: The system shall enable a user to choose whether he wants to receive order verification messages.	CLASS
CAR170	Options for Delivery and Availability Notification: For notification of the delivery or availability of line items, the system shall enable a user to choose separate e-mail notification for each line item or a single e-mail message when all line items are available or delivered.	CLASS
CAR347	Bulk Order Options for Delivery and Availability Notification: For notification of the delivery or availability of bulk order items, the system shall enable a user to choose separate e-mail notification for each item or a single e-mail message when all items in a bulk sub-order are available.	CLASS
CAR171	Options for Data Set Names: The system shall enable a customer to select a file name convention for delivered data, for example: orderNumber.itemNumber, datasetName.itemNumber, datasetName.	CLASS
CAR172	Extract Enable Option: The system shall allow data extraction to be disabled.	CLASS
CAR329	The system shall provide customers with the ability to select different delivery options for each data set. The available delivery options will be defined by agreement between NESDIS and the data provider.	CLASS
CAR615	The system shall provide the user options to select the output file format for CLASS_GOES_DATA. The options will include GVAR, McIDAS Area, NetCDF, HDF and, for image files, GIF and JPEG. Image files shall also have the option to be generated with or without map overlays.	GOES
CAR616	The system shall allow the user to select the data point resolution (precision) of the delivered data for CLASS_GOES_DATA. These options shall include 8-bit or 16-bit data word size. The default shall be 16-bit data word size.	GOES

ID	CLASS Allocated Requirements	Campaigns
CAR617	The system shall allow the user to select the spatial resolution of the delivered data for CLASS_GOES_DATA. For the visible channel, the options will be 1 x native resolution, 2 x native resolution, 4 x native resolution, 8 x native resolution, and 16 x native resolution. For the IR channels (including WV), the options will be 1 x native resolution, 2 x native resolution, and 4 x native resolution.	GOES
CAR618	Bands/Channels: The system shall allow the user to specify the bands/channels for imager and sounder instruments for CLASS_GOES_DATA.	GOES
CAR173	3.1.1.2.2.2 Data Delivery	
CAR174	The system shall process user orders automatically.	CLASS
CAR175	Process in Priority Order: The system shall process orders and line items according to their priorities.	CLASS
CAR176	Retry Data Set Transfer: The system shall automatically retry for a configurable number of times any system initiated data set transfer that failed.	CLASS
CAR177	Verify Transfer Success: The system shall verify the success of a system initiated data transfer by employing the capabilities of the selected electronic protocol. The verification method will be defined by NESDIS policies.	CLASS
CAR330	The system shall process orders in accordance to user specified delivery Options.	CLASS
CAR178	Perform Data Extraction: If a data set is being processed and that processing requires data extraction, the system shall extract the data.	CLASS
CAR179	Line Item Failure: If the processing of a line item fails because no scan line meets the selection criteria, the system shall mark the line item as failed and discontinue its processing.	CLASS
CAR180	Order Failure: The system shall not terminate the processing of an order or line item because some required resource is temporarily unavailable.	CLASS
CAR181	Pull Data: The system shall make ordered data available to be pulled via FTP.	CLASS
CAR182	Anonymous FTP Area: The system shall place unrestricted delivery data in a non-restricted FTP area accessible via anonymous login.	CLASS
CAR183	FTP Directories: The system shall automatically create all user-specific and order-specific directories required in the FTP area.	CLASS
CAR184	Expired Data Sets: If an ordered file is not delivered within the time period allowed for keeping files in the FTP area, the system shall set the line item status to indicate that the file has expired.	CLASS
CAR185	The system shall support the distribution of the CLASS_PRODUCT_DATA in native format from on-line and near-line storage (no subsetting.)	CLASS
CAR186	The system shall support re-processing of near-line CLASS_PRODUCT_DATA to distribute in the allowable formats.	CLASS
CAR187	The system shall support delivery of CLASS_PRODUCT_DATA as an e-mail attachment where appropriate.	CLASS

ID	CLASS Allocated Requirements	Campaigns
CAR188	Notify User of Push Failure: If all attempts to push a data set fail, the system shall notify the user of the reason for failure and provide the user with instructions for pulling the data set.	CLASS
CAR189	The interface shall provide a mechanism that allows the user to locally save a manifest of the submitted order. The manifest shall contain the detailed information available in the orders display.	CLASS
CAR190	The system shall enforce data-type-specific limits for ordering data.	CLASS
CAR191	Notify User of Data Availability: The system shall notify a user when his ordered data are available to be pulled.	CLASS
CAR192	Notify User of Data Unavailability: The system shall notify a user when any portion of his ordered data cannot be made available (e.g., zero scan line failure or data set unreadable). However, such notifications shall not be sent for subscription orders.	CLASS
CAR193	Send User Order Verification: The system shall be able to send verifications of user orders. A verification message shall notify the user that his order is being processed and shall include order number, line item numbers, data set names, user order comments, and user line item comments.	CLASS
CAR194	Push Failure Notification: Notification of push failures shall not be disabled even if the user has requested that delivery notification be disabled for his subscription..	CLASS
CAR348	The system shall provide the ability to encrypt data sets, as required by the data set provider or user.	CLASS
CAR619	Output format: The system shall create output files in the format options selected by the users, including GVAR, McIDAS Area, NetCDF, HDF and, for image files, GIF and JPEG for CLASS_GOES_DATA data sets. Image files shall also have the option to be generated with or without map overlays.	GOES
CAR620	Pixel Resolution Subsetting: The system shall perform data subsetting on CLASS_GOES_DATA data sets based on a user selection of 8-bit or 16-bit data word size.	GOES
CAR621	Spatial Resolution Subsetting: The system shall perform data spatial resolution subsetting on CLASS_GOES_DATA data sets based on a user selection of resolution.	GOES
CAR622	Geographic Subsetting: The system shall create geographically subsetted output files for CLASS_GOES_DATA based on a user selection in the specified output file format.	GOES
CAR623	Band Subsetting: The system shall create band subsetted output files for CLASS_GOES_DATA based on a user selection in the specified output file format. Default value will be to provide all bands.	GOES
CAR195	3.1.1.2.2.2.1 Security	
CAR196	Restricted FTP Area: If a user has a login id and password for access to the restricted FTP area, the system shall place all data ordered by that user in that restricted FTP area. That data shall be accessible only via that login id and password.	CLASS
CAR197	FTP Pull Access: The system shall require the user to enter an FTP user ID and password (non-anonymous) to get access to a restricted FTP area. Data sets in non-restricted FTP areas shall be accessible for FTP pull using anonymous FTP login.	CLASS
CAR198	3.1.1.2.3 Subscription and Bulk Order Services	

ID	CLASS Allocated Requirements	Campaigns
CAR199	3.1.1.2.3.1 Subscription Orders	
CAR200	The system shall accept subscription orders.	CLASS
CAR201	The interface shall support user modification of subscription parameters.	CLASS
CAR202	The system shall enable the specification of criteria for ingest-driven orders, which are orders for newly ingested data sets generated immediately after ingest. The selection criteria for such orders will include platform, instrument, receiving station, and geographic area.	CLASS
CAR203	The system shall be able to generate ingest-driven subscription orders in accordance with subscription specifications.	CLASS
CAR204	Delivery Notification Option: The system shall allow delivery notification to be disabled for a subscription.	CLASS
CAR205	Delivery destinations: The system shall enable a user to specify a different destination (host and directory) for each subscription.	CLASS
CAR206	Push Data: The system shall push ordered data sets via FTP to users who have requested that data be pushed to them.	CLASS
CAR207	Push Failure: The system shall repeat its attempt to push data to a user until it succeeds or until at least a configurable number of attempts have been made and a configurable time limit has expired. If all attempts fail, the system shall make the data available to be pulled.	CLASS
CAR331	The system shall assign subscription orders a default processing priority higher than the processing priority assigned to on-line orders.	CLASS
CAR208	3.1.1.2.3.2 Bulk Orders	
CAR209	The system shall be able to accept and fill special bulk orders for historic data. The processing of such orders may required operator action.	CLASS
CAR332	The system shall enable approved customers to specify criteria for selecting data sets to be included in a bulk order.	CLASS
CAR210	The system shall divide a bulk order into sub-orders, i.e., batches of data sets that will be made available for the user to pull.	CLASS
CAR211	After estimating the bulk order delivery schedule, the system shall make that schedule available to the user as part of a bulk order summary which will indicate the number of sub-orders and the content of each sub-order.	CLASS
CAR212	The system shall fill each bulk sub-order automatically as resources become available.	CLASS
CAR334	The system shall fill and deliver each bulk order in accordance to the estimated delivery schedule for that bulk order.	CLASS
CAR335	The system shall assign bulk orders a default processing priority lower than the processing priority assigned to on-line orders.	CLASS
CAR213	Bulk Sub-order Availability: The system shall make the data sets in each bulk sub-order available to the user after the user indicates that he has pulled the data in the previous sub-order.	CLASS

ID	CLASS Allocated Requirements	Campaigns
CAR214	Bulk Sub-order Notification: The system shall notify the user when each bulk sub-order is available.	CLASS
CAR333	The system shall allow customers with bulk order privileges to enable or disable order confirmation emails.	CLASS
CAR215	3.1.1.3 Preservation	
CAR216	3.1.1.3.1 Failover	
CAR349	The system shall enable operators to switch between operational sites in the event that one site stops operation.	CLASS
CAR217	3.1.1.3.2 Backup	
CAR350	The system shall archive all data at two CLASS sites.	CLASS
CAR351	The system shall maintain a backup of the inventory database.	CLASS
CAR218	3.1.1.3.3 Recovery	
CAR352	The system shall be able to restore the inventory to the state it was in prior to a failure.	CLASS
CAR353	The system shall be able to transfer files electronically between sites to synchronize the archives at the two sites after a failure or loss of data at one site.	CLASS
CAR219	3.1.1.3.4 Migration	
CAR354	The system shall provide data migration capabilities.	CLASS
CAR220	3.1.1.4 Operations Support	
CAR221	3.1.1.4.1 Report Generation	
CAR222	3.1.1.4.1.1 Log Messages	
CAR223	Processing activities and errors shall be logged.	CLASS
CAR224	The system shall log all activities with sufficient detail to determine the start, the end, where the entry originated, and the result of the event.	CLASS
CAR225	Log data set Cache Status: The system shall record in the log the downloading of each file into the local cache.	CLASS
CAR226	Record Extract Input: The system shall record the input to every extract job.	CLASS
CAR227	Log Extract Output: The system shall record in the log the completion of each extract job.	CLASS
CAR228	Save Extract Error Logs: If an extract job fails, the system shall keep the extract error log.	CLASS
CAR229	Log Errors: If any function fails during order or line item processing, the system shall log an error message.	CLASS

ID	CLASS Allocated Requirements	Campaign s
CAR230	Report Push Timeout: If a file cannot be pushed to a user within a configurable time limit, the system shall log a time out error message.	CLASS
CAR231	Log Line Item Failures: If any line item fails processing, the system shall log a failure message.	CLASS
CAR232	Log Cancellations: If any line or order is canceled, the system shall log a cancellation message.	CLASS
CAR233	Message Logging: Each process shall write status, error, and data validation messages to an appropriate log.	CLASS
CAR234	Message Notification: The system shall distribute log messages of selected types via e-mail.	CLASS
CAR235	Message Distribution: The types of messages to be distributed and the addressees to receive each type of log message shall be configurable parameters.	CLASS
CAR236	Error Logging: The system shall log all system errors except for user generated errors which shall be explained in messages sent to the user (but not logged).	CLASS
CAR237	3.1.1.4.1.2 Statistics	
CAR238	The system shall collect volumetric performance data for reporting.	CLASS
CAR239	The system shall collect resource utilization performance data for reporting.	CLASS
CAR240	The system shall store a customer's system utilization profile of orders and activities for reporting.	CLASS
CAR241	3.1.1.4.2 Resource Management	
CAR242	3.1.1.4.2.1 Disk Cache Maintenance	
CAR243	Check Extract Output Space: If there is insufficient free space for storing the output of an extract job, the system shall initiate cleanup of the extract output area and wait until adequate free space is available before starting an extract job.	CLASS
CAR244	The system shall perform routine housekeeping of the FTP, online storage, and cache areas.	CLASS
CAR245	The system shall remove visualization support files from online storage after a configurable amount of time.	CLASS
CAR246	Retention of Delivered Data: If adequate free space is available, a data set shall be retained in the local cache for a configurable number of days after the latest order for that data set has been placed. This time limit shall be based on the age of the data set (so that older files will be kept for a shorter time) and on parameter values that can be adjusted for each data type.	CLASS
CAR247	Retention of Ingested Data: If adequate free space is available, a data set shall be retained in the local cache for a configurable number of days after the data set has been ingested. This time limit shall be based on the age of the data set (so that older files will be kept for a shorter time) and on parameter values that can be adjusted for each data type.	CLASS

ID	CLASS Allocated Requirements	Campaign s
CAR248	Deleting Files from Local Cache: If there is insufficient free space in the local cache, the system shall incrementally shorten the retention times of all files and delete files older than their adjusted retention times until the required free space is available. The required free space level and the maximum allowed reduction in retention times shall be configurable parameters.	CLASS
CAR249	Keeping Active Files: No file shall be deleted from the local cache if there is any activity in progress or pending that requires that file.	CLASS
CAR250	Cleaning up Excluded File Systems: Local cache file systems that are flagged as excluded (i.e., not to be used for storing new files) shall be included in the local cache cleanup process.	CLASS
CAR251	Cleaning the Extract Output Area: The system shall delete extract output files after the data files have been copied to the area from which they will be delivered.	CLASS
CAR252	Keeping Files in FTP Area: If there is adequate space, the system shall keep files in the FTP area until they have passed a maximum age limit. This age limit shall be a configurable parameter. The system shall delete files older than this age limit.	CLASS
CAR253	Deleting Files from FTP Area: If there is a shortage of free space, the system shall delete all delivered files from the FTP area, including delivered files that have not reached the maximum age limit.	CLASS
CAR254	Deleting Files from Archive Directory: The system shall clean up the archive directory periodically or whenever there is insufficient space for creating new archive files. The system shall delete files that are older than a configurable age limit and that are not required by any activity in progress or pending.	CLASS
CAR255	Check Local Cache Space: If there is insufficient space for downloading a data set into the local cache, the system shall initiate local cache cleanup and wait until adequate free space is available.	CLASS
CAR256	Monitor FTP Log: The system shall read the FTP logs periodically to determine which data sets have been pulled.	CLASS
CAR257	3.1.2 Order Management Functional Requirements	
CAR258	3.1.2.1 Order Processing	
CAR259	3.1.2.2 Payment Tracking	
CAR260	3.1.2.3 Customer Data Processing	
CAR261	3.2 Performance Requirement	
CAR262	3.2.1 Archive and Distribution Performance Requirements	
CAR263	3.2.1.1 Archiving	
CAR264	File Transfer Timeout: The system shall terminate the transfer of a file from a remote site if that transfer is not completed within a preset timeout period.	CLASS
CAR355	The ingest and archive processing shall be available 24x7.	CLASS

ID	CLASS Allocated Requirements	Campaigns
CAR356	When the system detects a problem with the integrity of a received file, it shall notify the data provider within 45 minutes of the receipt of the file.	CLASS
CAR357	The system shall create an inventory catalog entry for each data set within a specified time of the receipt of that data set. This time limit will be specified by agreement between NESDIS and the data provider.	CLASS
CAR358	The system shall notify the data provider within a specified time of recognizing that a data set fails to meet pre-established quality criteria. This time limit will be established for each data type by agreement between NESDIS and the data provider.	CLASS
CAR359	The system shall archive every cataloged data set in local near-line storage within 4 hours of the ingest of the data set.	CLASS
CAR360	The system shall provide network hardware at each site that supports 150% of total daily ingest data for all sites combined.	CLASS
CAR361	The system shall report telecommunications problems within 2 hours of detection.	CLASS
CAR265	3.2.1.2 Distribution	
CAR362	The user interface shall be available 24x7.	CLASS
CAR363	The system shall be capable distributing at least 70 GB volume of data sets and products per day.	CLASS
CAR266	3.2.1.3 Operations Support	
CAR267	Deletion of Old Logs: The system shall keep a copy of all monitoring and operations logs for a configurable number of days, after which point they shall be automatically deleted.	CLASS
CAR268	3.3 Operational Requirements	
CAR269	3.3.1 Operational Sites	
CAR364	The system operation shall have two facilities that normally operate 24x7.	CLASS
CAR365	The system shall archive all data at the two CLASS sites located in Suitland, MD and Asheville, NC.	CLASS
CAR366	Each CLASS site shall be able to ingest and archive all data types.	CLASS
CAR367	The system shall follow disaster recovery procedures dictated by NESDIS policies.	CLASS
CAR270	3.3.2 Human Factors	
CAR368	The system shall comply with NOAA web site standards.	CLASS
CAR370	The system shall comply with Section 508 of the Rehabilitation Act.	CLASS

ID	CLASS Allocated Requirements	Campaigns
CAR371	The system's operators shall follow operational procedures dictated by NESDIS management.	CLASS
CAR271	3.3.3 Monitoring and Control	
CAR272	Set Order Priority: The system shall enable an operator to set the priority of an order or line item.	CLASS
CAR336	The system shall follow operational procedures dictated by NESDIS management.	CLASS
CAR337	The system operators shall be able to control all operational components of the system.	CLASS
CAR273	Limit Number of FTP Pushes: The system shall enable an operator to limit the number of concurrent FTP push sessions per user.	CLASS
CAR274	Cancel Line Item: The system shall enable an operator to cancel a line item.	CLASS
CAR275	Cancel Order: The system shall enable an operator to cancel an order.	CLASS
CAR276	Fail Line Item: The system shall enable an operator to fail a line item.	CLASS
CAR277	Hold Line Item: The system shall enable an operator to place a line item on hold.	CLASS
CAR278	Hold Order: The system shall enable an operator to place an order on hold.	CLASS
CAR279	Restart Line Item: The system shall enable an operator to restart a line item.	CLASS
CAR280	Restart Order: The system shall enable an operator to restart an order.	CLASS
CAR281	Start and Stop Processes: The system shall enable an operator to start or stop all Delivery Server processing and to start or stop individual processes.	CLASS
CAR282	The system operators shall be able to configure the system using the Internet Example of such configuration include: directing input, output, and throughput by data set type, to quickly adapt to NESDIS management policy.	CLASS
CAR283	The system operators shall have read access to log files.	CLASS
CAR284	The system operators shall be able to execute ad hoc database queries.	CLASS
CAR285	The user interface shall be designed to provide the system operator with the ability to add messages and links without software modifications.	CLASS
CAR286	The system operators shall be able create and modify customer profiles.	CLASS
CAR287	The system operators shall be able to control the processing of an order. Example of such control includes capability to: cancel, restart, put on hold, or alter priority of an order or part of an order.	CLASS
CAR288	Operator Accessibility: The application log files may be viewed by the operator.	CLASS

ID	CLASS Allocated Requirements	Campaigns
CAR289	Reingest/Rearchive: The system shall allow the operator to initiate the reingesting or rearchiving of selected data sets.	CLASS
CAR290	Server Status: The system shall allow operators to monitor the status of all servers.	CLASS
CAR291	Starting and Stopping Servers: The system shall allow the operator to start and stop selected servers. The system shall also allow the operator to put a selected server into a hold state, e.g. to stop inventory searches, order submission, or order processing while system maintenance is in progress.	CLASS
CAR292	Order Status: The system shall allow the operator to view the status of orders.	CLASS
CAR339	The system operators shall be able to modify the inventory catalog in accordance with NESDIS' policies.	CLASS
CAR293	Purging Inventory Records: The system shall allow the operator to purge selected records from the data set inventory.	CLASS
CAR294	The system shall have an interface through which an operator may supply and update the CLASS_PRODUCT_DATA data set attributes required for inclusion into the system.	CLASS
CAR295	The system shall enable operators to select the types of data to be archived to the local near-line storage facility.	CLASS
CAR338	The system operators shall provide NESDIS management with data acquisition, data distribution, and system performance reports to facilitate planning for system growth.	CLASS
CAR296	3.3.4 Data Maintenance and Migration	
CAR372	The archived data sets shall be managed in accordance with standard NARA and NESDIS data archive management practices and procedures.	CLASS
CAR373	The system shall support data migration activities in accordance with NARA and NESDIS policies.	CLASS
CAR374	The data migration activities shall not interrupt normal system operations.	CLASS
CAR297	3.3.5 Security	
CAR375	The system operation shall be performed in an electronically secure network area.	CLASS
CAR376	The system shall adhere to NESDIS' security policies.	CLASS
CAR377	The system operators shall be provided with the ability to deny data to specific customers by type for a specific period of time.	CLASS
CAR378	The system operation shall provide secure access to customer information, for both the customer and approved customer service personnel.	CLASS

ID	CLASS Allocated Requirements	Campaign s
CAR379	The system shall comply with US Government regulations [e.g. NOAA, NARA, US Department of State] regarding distribution of US Government data.	CLASS
CAR380	The system shall comply with US Space Command and NOAA agreements regarding redistribution of Four Line Element ephemeris data.	CLASS

ID	CLASS Allocated Requirements		Campaigns
CAR298	4 Acronyms		
CAR299	24x7	Twenty-four hours by seven-days a week	
CAR571	ASF	Akaska Satellite Facility	
CAR560	ASOS	Automated Surface Observing System	
CAR573	AVHRR	Advanced Very High Resolution Radiometer	
CAR570	CEMSCS	Central Environmental Satellite Computer System	
CAR300	CLASS	Comprehensive Large Array-data Stewardship System	
CAR574	DoD	Department of Defense	
CAR561	DMSP	Defense Meteorological Satellite Program	
CAR562	EOS/MODIS Infrared	Earth Observing System/Modern Operations Distributed Spectrometer	
CAR302	FTP	File Transfer Protocol	
CAR563	GOES	Geostationary Operational Environmental Satellite	
CAR564	METOP	Meteorological Operational satellites	
CAR303	NARA	National Archive Records Administration	
CAR565	NASA	National Aeronautics and Space Administration	
CAR304	NESDIS Service	National Environmental Satellite, Data and Information	
CAR566	NEXRAD	NEXt Generation Weather Radar	
CAR572	NIC	National Ice Center	
CAR305	NOAA	National Oceanic and Atmospheric Administration	
CAR567	NPOESS System	National Polar-orbiting Operational Environmental Satellite	
CAR568	NPP	NPOESS Preparatory Project	
CAR575	OFAC	Office of Foreign Assets Control	
CAR569	POES	Polar-orbiting Operational Environmental Satellite	